KPDES FORM HQAA

PREPARED FOR

PHOENIX COAL PROCESSING COMPANY

KPDES NO. ~~KYG044472~~ KY0107158

ORIGINAL

PREPARED BY

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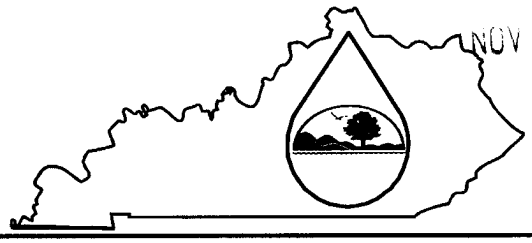


NOV - 8 2007

Kentucky Pollutant Discharge Elimination System (KPDES)

High Quality Water Alternative Analysis

The Antidegradation Implementation Procedures outlined in 401 KAR 5:030, Section 1(3)(b)5 allows an applicant who does not accept the effluent limitations required by subparagraphs 2 and 3 of 5:030, Section 1(2)(b) to demonstrate to the satisfaction of the Environmental and Public Protection Cabinet that no technologically or economically feasible alternatives exist and that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the water is located. The approval of a POTW's regional facility plan pursuant to 401 KAR 5:006 shall demonstrate compliance with the alternatives analysis and socioeconomic demonstration for a regional facility. This demonstration shall also include this completed form and copies of any engineering reports, economic feasibility studies, or other supporting documentation

I. Permit Information

Facility Name:	Phoenix Coal Processing Company	**KPDES NO.:**	~~KYG044472~~ KY 0107153
Address:	1215 Nebo Rd. Suite A	**County:**	Muhlenberg
City, State, Zip Code:	Madisonville, KY 42431	**Receiving Water Name:**	Unnamed Tributaries of Cypress Creek

II. Alternatives Analysis - For each alternative below, discuss what options were considered and state why these options were not considered feasible.

1. **Discharge to other treatment facilities.** Indicate which treatment works have been considered and provide the reasons why discharge to these works is not feasible.

The nearest municipal sewage treatment facility is the Central City Treatment Plant which is 4.35 miles away. This plant was not designed for or capable of effectively treating either the type (high solid) or volume of water possible with this project. Influx of water from this project would likely overload this facility resulting in a by- pass which would lead to discharge of untreated municipal wastes creating a serious public health threat.

Because of terrain, routing of water to this plant would require more than 22,968 feet of carrier line, an extensive network of pump and lift stations, and obtaining numerous right-of-ways and easements. Conservatively estimating line @ $22/foot, a minimum of 3 lift stations at $50,000 each, a central collection system, ignoring other stated requirements, the minimum cost of this option would greatly exceed $1 million dollars.

Transporting this volume of water by self-contained disposal trucks would also be excessively expensive and impractical. Based on a required 25 year, 24 hour storm event calculation, the possible peak discharge* from this project could exceed 2210 mgpd. Rates quoted from Somerset Environmental in Somerset, KY indicated charges of $65/hour (gate to gate)/3,000 gallon pick-up of non-hazardous wastewater and a $0.49/gallon disposal fee.

2. **Use of other discharge locations.** Indicate what other discharge locations have been evaluated and the reasons why these locations are not feasible.

Little Cypress Creek was considered as an alternate discharge location but it is in an adjacent watershed and because of the topography; would require pumping the water around a hill and routing it under the Western Kentucky Parkway. To route water to Little Cypress Creek would require a central collection system for discharges from basins #270 , #277, #278, approximately 10,000 feet of line, a minimum of 2 lift stations to pump the water and additional permit area. A conservative estimate of this option would exceed $1.5 million dollars. Excavation, installation and involved constructions would create a greater environmental disturbance than the proposed discharge location with same end results of discharging into a comparable quality water resource. Lift stations are site specific and vary greatly but are specific to topography and substrate composition:

***Table 1**
Pressure (LPS)

Pumping Stations (No. per mile by topography)	*Flat*	*Rolling*	*Steep*
200 gpm P.S. $54,000	0	0	2
100 gpm P.S. $43,200	0	1	2
Composite Cost	$0	$43,200	$194,400

Gravity

Pumping Stations (No. per mile by topography)	*Flat*	*Rolling*	*Steep*
200 gpm P.S. $54,000	1	0	2
100 gpm P.S. $43,200	2	1	2
Composite Cost	$140,400	$43,200	$194,400

"A Mathematical Model For Estimating Sewer Costs"
by George A. Earle, III, P.E. and R. Paul Farrell Jr., P.E., Environment One Corporation

Placement and design of current discharge locations were engineered to be the most effective and least invasive.

II. Alternatives Analysis - continued

Water reuse or recycle. Provide information about opportunities for water reuse or recycle at this facility. If water reuse or recycle is not a feasible alternative at this facility, please indicate the reasons why.

This project is a dredging operation that removes coal slurry from the impoundment, extracts the coal fines and returns the water to the impoundment. It is a closed system in which no water is discharged from the process. The water is continuously reused in the recovery process.

There are no other facilities on site that will require a raw water source.

4. **Alternative process or treatment options.** Indicate what process or treatment options have been evaluated and provide the reasons they were not considered feasible.

As an alternative treatment option, sand filtration was evaluated but deemed not applicable. Sand filtration is used primarily as a pre-treatment to remove microbial contaminates, not particulate matter, in storm run-off in smaller, urban drainage areas. The high solids involved in a storm event could possibly clog the filtration unit rendering it ineffective. Sand filters do not control storm water flow and do not prevent downstream bank and channel erosions as proposed sediment structures are designed to do. Also, the operational effectiveness of these units in colder climates and freezing conditions are not yet known.

Using silt fences and straw bales for sediment control was considered as per BMP's but were determined to be inadequate due to the drainage area size.

Other mining methods were considered. This is a dredging operation recovering coal fines from a slurry impoundment and a surrounding refuse area. Dredging and dry mining are the only methods to recover these coal fines.

Constructing an on-site storm water treatment facility was considered. The volume of discharge and the lift required make this an unfeasible option. Calculating a peak flow from a 25 year, 24 hour rainfall event using the rational equation Q=ciA where: Q=Peak discharge, c=runoff coefficient based on land use, i=rainfall intensity in inch/hour, and A=drainage area in acres, of 1,534,531 gpm would make the cost of this disposal option excessive. Consultation with Beckman Environmental in Cincinnati, OH, a company that specializes in these types of constructions, revealed a recent bid on a project in Columbus, OH involving a lift of only 30 feet, a peak discharge of 3800 gpm, a grit removal tank, and influent and effluent lines at $2.5 million dollars.

II. Alternatives Analysis - continued

On-site or subsurface disposal options. Discuss the potential for on-site or subsurface disposal. If these options are not feasible, then please indicate the reasons why.

On site disposal was considered as a disposal option. The construction of an on-site wastewater treatment type plant would require a facility engineered to handle over 2210 mgpd during a 24 hour, 25 year storm event.* Construction cost for treatment plants are engineered to specific location, load and other conditions but with a required collection system would be expected to exceed $2 million dollars. These plants require a continual power source, daily maintenance, periodic repair and leave a large footprint. Since these structures are designed not to discharge, other source water would have to be fed to this type of plant to keep it operational. After completion of this project, the plant would either have to be removed or abandoned to unsightly, dangerous rubbish.

**The Rational equation is the simplest method to determine peak discharge from drainage basin runoff. It is not as sophisticated as the SCS TR-55 method, but is the most common method used for sizing sewer systems.*

The installation of a sanitary septic system, i.e., septic tank was evaluated but is not an applicable option. Building a system **large enough** to handle the **volume of water** would be impractical. Septic systems are design to degrade organic waste and biodegradable material over time by anaerobic digestion. While the source water would most likely contribute some organic material and some needed bacteria, this would be inadequate to decompose the sediment and would work essentially the same as a sediment structure.

Injection of waste water into abandoned underground mine works is presently being evaluated. However, slurry injection is generally used as supplemental or secondary storage. This is because underground mine maps can sometimes be inaccurate and obstacles in the mine can limit the volume of slurry which can be injected eg. stoppings, and other ventilation controls, roof falls, floor heave, etc. It is not anticipated that underground injection will be able to serve as the sole source of wastewater disposed.

6. **Evaluation of any other alternatives to lowering water quality.** Describe any other alternatives that were evaluated and provide the reasons why these alternatives were not feasible.

Choosing not to recover these coal products an alternate to lowering water quality was evaluated but the loss of the 28 direct jobs and the resulting $1.6 million dollars in approximate collective annual salaries, the loss of as many as 69 indirect jobs as well as loss of revenues including severance tax estimated at $9 million dollars over the life of the project would have severe negative economic consequences.

Accepting the more stringent discharge limitations was considered but because this would require more aggressive chemical treatment, the real potential for an environmental or personnel accident exist. The costs are extreme and it was dismissed. Based on information from OSMRE, the cost for chemical treatment of a mildly acidic mine drainage with an average flow of 100 gpm using caustic soda was $94,784. With a possible flow of over 2013 mgpd during a rainfall event, the cost of this option could exceed $1.5 million dollars making the cost of this option completely prohibitive.

III. Socioeconomic Demonstration

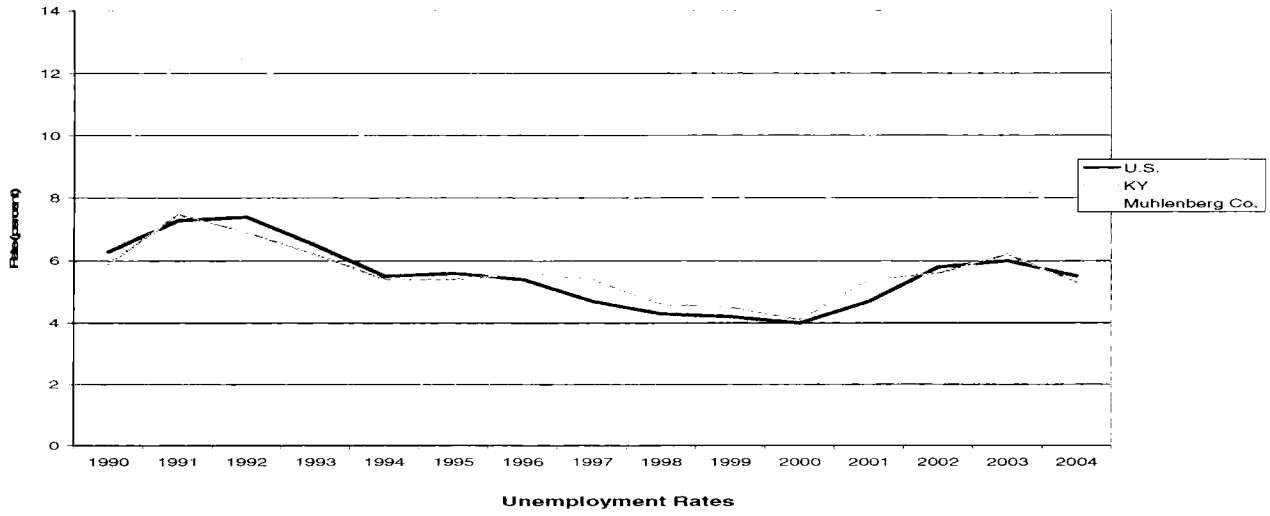
. State the positive and beneficial effects of this facility on the existing environment or a public health problem.

The watershed to be impacted by this project is compromised due to previous mining, including pre-law disturbance, logging, gas wells and urbanization in the area. Once this project is complete, the area will be established as a military/industrial site used by the Commonwealth of Kentucky for National Guard Training. With the completion of this project the slurry from the impoundment will have been removed, the dam, which is currently located adjacent to the site, will either be removed or reduced in size effectively eliminating the potential for a breech improving safety for the area. The area will be graded to engineered drainage specifications, and cover material will be placed as necessary to support vegetation. Species indigenous to the area will be planted to establish an adequate riparian zone in areas not specifically used for military /industrial development. As needed, stream channels will be rehabilitated to proper dimension, pattern and profile. These efforts will help control sedimentation; provide a functional stream capable of providing a healthier habitat for aquatic species and will lead to a more balanced ecosystem.

2. Describe this facility's effect on the employment of the area

The small community of Greenville historically has an unemployment rate significantly higher than the state and national averages. This project will employ 28 people of which 95% are expected to be local residents. Economic impact studies suggest that the mining industry creates 3 indirect jobs for every actual direct mining position.* Based on this data, this project will provide 112 total jobs. This will aid in maintaining employment in an area which is very dependent upon the coal industry for it's employment and economic health.

*Source: University of Kentucky Center for Business and Economic Research: Economic Impact Analysis of Coal in Kentucky, *(1995) to 2004* by Haywood and Baldwin



3. Describe how this facility will increase or avoid the decrease of area employment.

By providing 28 direct jobs and as many as 112 indirectly related jobs, this facility will help increase the area's employment. This is significant for Greenville due to the fact that the community is small and the county unemployment rate is significantly higher than the state and national averages. In August 2007, the unemployment rate for Muhlenberg county was 8.7% with 1,140 individuals* unemployed and seeking employment. The addition of the 112 persons directly and indirectly provided jobs by this project would ignificantly decrease that rate. Although in a current upswing, the mining industry had experienced an almost 30% decrease in employment preceding 2005. These jobs will help decrease this trend.

*Workforce Kentucky, Labor Market Info.

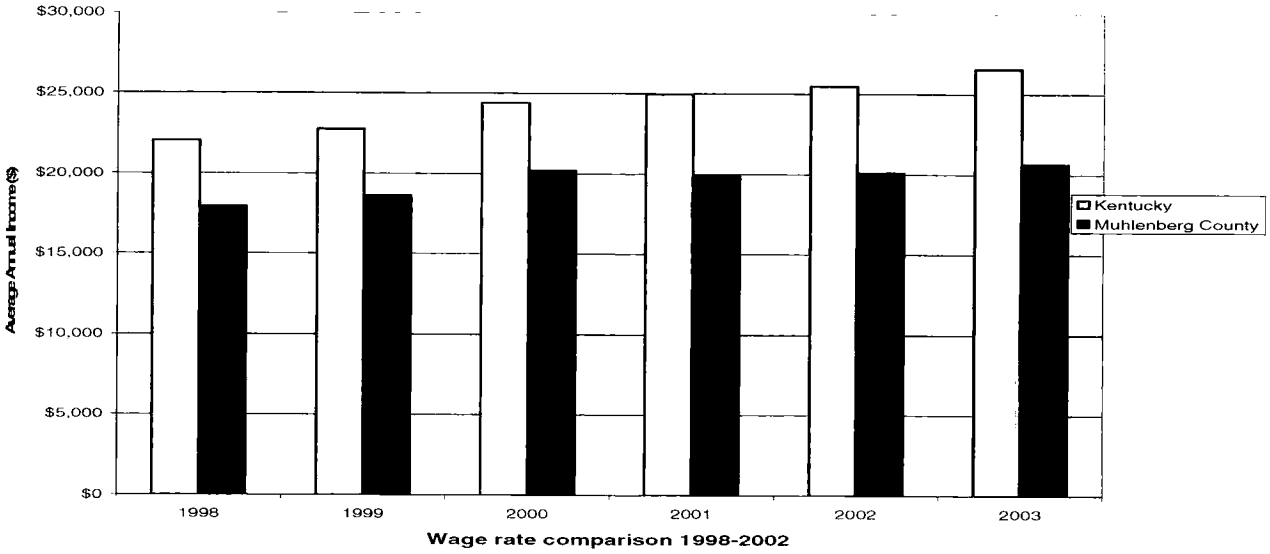
Describe the industrial or commercial benefits to the community, including the creation of jobs, the raising of additional revenues, the creation of new or additional tax bases.

In addition to the 28 direct jobs provided by this project, it will also provide for more employment indirectly in mining service jobs. Studies indicate that the mining industry creates 3 indirectly related jobs for each actual direct mining position.* These jobs include equipment sales, mining engineering consultants, food service, fuel sales, transportation, coal washing and blending. The mining industry directly contributes to Muhlenberg's economy through real taxes, personal property taxes and the state severance tax. The severance tax rate for coal is 4.5% of which 50% is slated to be returned to the county of origin. From 1995 thru 2003, Muhlenberg County received $3,624,419.74 in severance taxes which have been used for local education, health services, judicial services and infrastructure projects including water and sewer service expansion, industrial site development, and recreational and cultural improvements. This project will contribute to this tax base. Muhlenberg county should see the return of close to $4.5 million dollars in severance tax dollars from this project. The Commonwealth of Kentucky holds the surface deed to this property and will receive royalties on the sale of recovered coal benefiting the Commonwealth with additional revenues. This expands the economy of Muhlenberg County as employment rates will increase.

*Source: University of Kentucky Center for Business and Economic Research: Economic Impact Analysis of Coal in Kentucky, *(1995-2004) by Haywood and Baldwin*

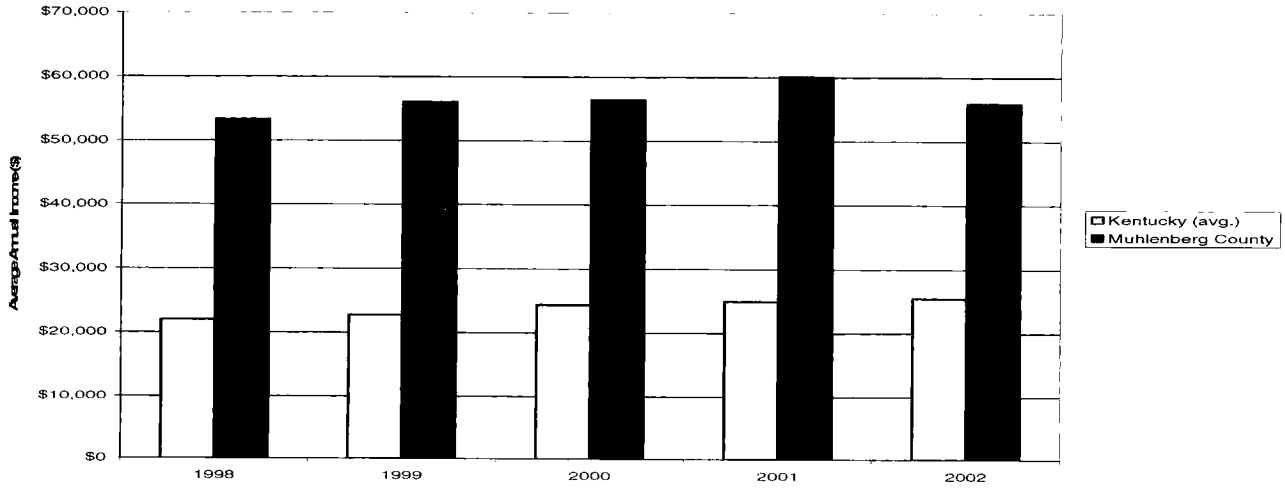
5. Describe any other economic or social benefits to the community.

The jobs that this project provides pay some of the highest wages in the Muhlenberg County. The maintenance of these jobs will have a positive significant impact on the community's economy. Comparing the average income of a Muhlenberg county resident with that of other Kentucky residents, Muhlenberg county residents earn on the average $6,000 less per year.



Wage rate comparison 1998-2002

During the same period, a Muhlenberg county coal miner earned double that of the average Kentucky resident as illustrated



Mining wage rates 1998-2003

The average weekly earning for a mining employee in Muhlenberg County in 2004 was $1301.47.

II. Socioeconomic Demonstration - continued

	Yes	No
6. Will this project be likely to change median household income in the county?	☒	☐
7. Will this project likely change the market value of taxable property in the county?	☒	☐
8. Will this project increase or decrease revenues in the county?	☒	☐
9. Will any public buildings be affected by this system?	☒	☐

10. How many households will be *economically* or *socially* impacted by this project? **112**

11. How will those households be *economically* or *socially* impacted? (For example, through creation of jobs, educational opportunities, or other social or economic benefits.)
The average weekly earnings for a mining employee in Muhlenberg County in 2004 was $1301.47*. These earnings accounted for 7.5% of the total county wages for that time period. The income realized from the direct jobs provided by this project will be over $50,000 year/household or approximately $1.4 million dollars collectively. In 2004, **19%** of Muhlenberg county residents were identified as living below the poverty level. In 2000, census data showed that **only 8.1%** of Muhlenberg County's residents held a bachelors or higher degree while state wide 17.1 % of Kentuckians held advanced degrees. The non-degreed jobs provided by this mining project allow these households to earn more than most other occupations in Muhlenberg County including construction, manufacturing, utilities and real estate. These earnings will help these households to maintain or improve their current economic status and provide opportunities for gains in social welfare only realized from enhanced income.

**Ky Coal Facts/Wages by County*

	Yes	No
12. Does this project replace any other methods of sewage treatment to existing facilities? (If so describe how)	☐	☒

There is no treatment taking place in the project boundary.

	Yes	No
13. Does this project treat any existing sources of pollution more effectively? (If so describe how.).	☒	☐

This is a dredging project that will recover coal fines from a slurry impoundment. Once the project is completed, the area will be graded, filled and developed to its post mine land usage of an industrial/military development expansion. Inadequate sediment control will be improved, existing over growth will be removed and vegetation will be established in the area to control run-off preventing channelization of receiving streams due to excessive silting.
Prior to the state of this project, the mine site will be cleaned and all garbage material will be disposed of. Haul roads within the project area will be graded and ditched to provide adequate sediment control. Once the project is complete, the slurry from the impoundment will have been removed, the dam will be either be removed or reduced in size where it is no longer considered regulatory by MSHA, effectively eliminating the possibility of contamination from this source. Implementation of this project will improve approximately 70 acres of previous disturbance.

III. Socioeconomic Demonstration - continued

	Yes	No
14. Does this project eliminate any other sources of discharge or pollutants? (If so describe how.)	☒	☐

This project will involve reclaiming old mine sites lacking proper filling, grading and seeding necessary to prevent erosion and sedimentation. It will also provide better sediment control for approximately 70 acres from run-off resulting from logging, urbanization, gas wells and previous mining in the area.

15. How will the increase in production levels positively affect the socioeconomic condition of the area?

This project will remove over 7 million tons of coal fines that would not have been recovered or made available to the market otherwise. This will result in the continued direct and indirect employment for approximately 112 people, aid in development and maintenance of other support industries and will increase the amount of money the area receives in personal and severance taxes. Muhlenberg County should see the return on an estimated $4.5 million dollars in severance tax dollars from this project alone.

16. How will the increase in operational efficiency positively affect the socioeconomic condition of the area?

This project makes possible the recovery of additional coal reserves that would not be recovered with other methodologies. This project allows a planned, controlled recovery resulting in a useable area that will be graded, seeded and monitored to ensure an area that is aesthetically pleasing and ecologically viable. Reclamation will be on-going as the project progresses allowing a more expedient recovery. Reclamation plans for the permit area including insufficiently reclaimed areas calls for industrial/military land use. When mature, this area will support its intentional land use objectives.
The operation of this facility will create direct and indirect jobs. It will also increase the tax revenue realized from coal sales that help subsidize an economy dependent of the coal industry.

IV Certification: I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

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Signature:	MathewAHaaga	**Date:**	11/07/07